



EUrban Water
Aid Project

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LAYMAN'S REPORT

IMPROVING CIVIL PROTECTION RESPONSE
TO FLOOD RELATED DISASTERS



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Humanitarian Aid
and Civil Protection

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Introduction

Introduction to the Project

Answering the call for proposals for prevention and preparedness projects by Directorate General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) in 2015, Hungary, Slovakia, Croatia and Serbia decided to submit a grant application under the project leadership of the National Directorate General for Disaster Management of Hungary. As each of the four countries are threatened by floods and in past years all witnessed and experienced severe destruction from floods, the choice for topic of the joint preparedness and prevention project is hardly surprisingly floods.

According to the grant agreement, the five Project Partners from the four countries were to conduct Workshops and Meetings in order to prepare a large Full Scale Exercise (FSE), where they would simulate the joint response for a scenario in which River Tisza is flooding and imminent multinational and multi modular assistance is required.

Project Partners



National Directorate General for Disaster Management of Hungary (NDGDM) was the Lead Beneficiary or Project Leder of the EUrban Water Aid Project. NDGDM's main mission is preventing disasters as an authority; carrying out rescue operations in civil emergencies; organising and controlling protection activities; eliminating the negative consequences of emergencies and performing reconstruction and rehabilitation. Hungary's registered Heavy Urban Search and Rescue (H-USAR) Team HUNOR, is also under the command the NDGDM.



Budapest Waterworks (BWW) was involved in the preparation of the Grant Application and the Project from the very beginning. The 149 years old BWW maintains a long relationship with NDGDM, as the company bears responsibility in emergency water supply in Hungary and has significant experience in international humanitarian assistance missions through its Hungarian Water Aid Unit (HWAU), a registered Water Purification (WP) module in the EUCP Mechanism.



Fire and Rescue Service of the Slovak Republic (FRS) is responsible for the management and organisation of the fire units of Slovakia. Respond to fires, rescue work in natural disasters, and other incidents is carried out by FRS, which is therefore responsible for the operation Slovakia's registered High Capacity Pumping (HCP), Water Purification (WP) and Medium Urban Search and Rescue (M-USAR) modules.



National Protection and Rescue Directorate (DUZS) of Croatia is the leading organisation for the protection and rescue of people, assets and environment in the Republic of Croatia. DUZS is an independent, professional and administrative organisation, tasked with preparing plans and managing operational forces as well as co-ordinating the activities of all participants in the protection and rescue system.



Belgrade Waterworks and Sewerage (BVK) of Serbia is the water utility company of Belgrade. However, as the biggest of such service providers in Serbia and the single one in the country capable of providing assistance to other regions in case of need, BVK is legally tasked with assistance in water supply for other municipalities and affected population in case of flood or other disaster situations in which the water supply of an area is damaged or disturbed.

Preamble

Tisza floods

Flooding is undoubtedly the most common environmental hazard in Central Europe, due to the vast geographical distribution of river floodplains and low-lying coastal areas. It is also the regions' and the World's most expensive type of natural disaster, damages are calculated in hundreds of billions of Euros. Floods have the potential to cause fatalities, displacement of people, damage to environment and cultural heritage, to severely compromise economic development and to undermine the economic activities of the community causing damage to infrastructure such as water dwells and systems. The danger is all too real. One of the most shocking floods occurred at Szeged in March 1879, when 95% of the city was destroyed in flood. The entire city of Szeged had to be rebuilt. On the painting below, the Emperor is seen inspecting the damage, which he did just two weeks after.



The great flood of 1879 was full two meters lower, however than the 2006 flood (see picture). Although our defenses are better, we must stay vigilant and prepare for the worst. Below left is the 2006 flood at Szeged; below right is the 2017 ice-flood on the Tisza.



The flooding of the river Tisza is a **common threat to Romania, Slovakia, Hungary and Serbia.**

According to the results of the disaster risk assessment recently conducted in the above countries, flooding is the **No 1. risk**. Tisza is the biggest tributary of the Danube river with a length of 965 km, it originates in Ukraine, has tributaries in Slovakia, enters Hungary, then and enters Serbia on the South just to join the Danube in Vojvodina, Serbia. On this river, a large flood is expected every five years, affecting 10.000s of people living near the river. Relief experiences so far have shown the lack of trans-border coordination and cooperation, the lack of standardized response procedures to follow. The most common challenges to be improved are in general the lack of timely information about the level of the water flow; the lack of exchange of information, especially GIS data for reliable risk assessment & mapping; insufficient and unreliable information in general; deficient transnational early-warning and alert system; lack of reliable system of common hydrological forecast, etc.

Basics

Joint application of different capabilities in disaster response

As for the future disaster intensified with the effects of climate change, water supply of the population (evacuated or lacking drinkable water at home) will be more and more important in the Central European region as well as it already in large scale emergencies all over the World. A general characteristic of floods and water-related disasters is that population and infrastructure – especially water infrastructure – are both struck at the same time. Lacking an operational drinking water network, search and rescue units deployed in the area have to provide for their own drinking water needs as well, raising logistic costs, unit size and putting unnecessary burden on themselves.

Water Purification (WP) units – especially those of non-authority background – face serious challenges in times of deployment, due to lack of familiarity with the area and to their difficulties of connection to the local disaster management centres.

In general, it is the Urban Search and Rescue (USAR) units that are deployed first in disaster response, followed by other response capabilities, including WP modules later on. Yet, in most cases WP modules are responsible for solely for the drinking water supply of the local population, while USAR teams remain to depend on drinking water transported for them from a distance. This way, both WP modules are wasting capacities and USAR modules are wasting resources on unnecessary logistical work and expenditures.

There are numerous precedents where USAR and WP modules were deployed parallel (2010 Haiti, 2011 Japan, 2013 Philippines, 2014 Serbia and Bosnia and Herzegovina) but none of the precedents shown joint deployment of the two modules.

The EUrban Water Aid 2016 Project aimed to prove through its Workshops and Full Scale Exercise that the joint application and on-site resource pooling of different modules and response units is justified and serves the benefit of all such joining capabilities.

Needless to say, it is possible to identify several points of connection between other modules or units as well. The Full Scale Exercise of the Project proved that beside USAR and WP modules, Flood Rescue with Boats (FRB) and High Capacity Pumping (HCP) units also fit well into the framework of joint application by sharing its resources and capabilities with the rest of the response forces.

One significant finding for the cooperation of HCP and WP units is the ability to supply the raw water for purification from a distance in which case the WP module does not have to be deployed in the immediate vicinity of the raw water source (the flooding river, for example), but is able to join a joint Base of Operations (BoO) with other response units. The distant supply of raw water can also be applied in case of unexpected hazardous contamination of the raw water source.

Project Implementation I.

Methodology

The methodology of the implementation of the Project was drawn by previous experience and practices of the Project Partners. The Project Planning Group was to ensure that all Project Partners and stakeholders have a change to achieve their individual goals during this project. The Project Board was responsible to provide a forum where the common and individual goals of the project partners and the goals of the host nation stakeholders are discussed. The Board coordinated with the Project Manager to ensure that the goals of the partners were represented during the planning and implementing phase of the exercise.

Three workshops were organised during a span of nine months. The work in each workshop was conducted in workgroups (command & control, operation, support & logistics), where colleagues from the Project Partners shared experiences and worked towards findings on the different main topics of the workshops.

A fourth workshop was held after the Full Scale Exercise where Project Partners discussed their experiences of the Exercise. The fourth workshop also served as validation workshop.

Parallel to the workshops, Exercise Planning sessions have been organised with the task of design and organisation of the Table Top Exercise and Full Scale Exercise.

The principal output of the EUrban Water Aid Project is the Field Handbook, which presents best practices of water purification and emergency water supply in cooperation with urban search and rescue teams. The Field Handbook was prepared following the Full Scale Exercise by the Project Partners according to their findings, in cooperation with the response teams. The Field Handbook is finalised and validated at the fourth, validation workshop.

Workshop Summary

During the EUWA project, four workshops were held, which gave the backbone of the project.

Workshop 1

Basis of cooperation between EU CP modules in emergencies

Within the project “EURBAN Water Aid”, in Budapest, Hungary the first of four Workshops was held, between the 7th – 8th of March 2016, and present were representatives from Hungary, Slovakia, Croatia and Serbia, and a representative from European Commission. After introductions, the representative from European Commission: Mr. Per-Øyvind Semb, desk officer of the “EURBAN Water Aid” project, expressed his opinion that the present Project is similar to the very successful projects (e.g.: “Mura 2015”), and that it is important to have neighbouring countries together. The desk officer stressed that the Mechanism we are using is for EU solidarity and cross border help, in three main areas: prevention, preparedness, and response. Aim is to improve the capacity to respond to disasters, with exercises, trainings, exchange of experts. The normal budget for civil protection is small, because the aid is from one Member State to the other, but the Exchange of Experts Program is underused. Mr. Csaba Haranghy, CEO of Budapest Waterworks, stressed the importance of the Project for the Budapest Waterworks, and expressed his hope that the professional contacts made in this project will last for many years to come, bringing the different countries together and making cooperation in time of need much easier.

Following the plenary meeting, participants were divided into three groups: Command and Control Workgroup; Support and Logistics Workgroup; Operations Workgroup. The workgroups program lasted for the rest of the day and also the second day of the 1st Workshop. Workgroup methodology was prepared in such a way as going through a prepared list of questions. Questions included 10 questions prepared beforehand and ad-hoc issues raised during the workgroup sessions. Comparative approach was used, with 4 countries and 5 organisations present. Participants' aim was getting to know each other and their partner organisations, legal, human and technical possibilities and limits, the depth of their experiences.

At the end of the second day of the 1st Workshop, participants met for a final plenary meeting, where the three Work Groups presented their findings, including:

- Contact person on the ground permanently. When all else fails you should have a contingency plan. This involves a contact person, who speaks the local language, is on the ground permanently, and can be called upon 24/7 in an emergency.
- Communication failure. The normal mobile networks can fail. Special telephones are necessary.
- Written templates with same structure in each country, just like a driving license.
- Host nation vs transit nation. Transit nation can also be very important.
- Incident commander: the decision maker on the ground.
- Police to control access to disaster area.
- Chaos vs order. We stand between chaos and order in time of emergency. We could do better, not just create order, but a community building experience. A disaster could become a nation's finest hour, we must use it as an opportunity, not just a threat. Managed well, a community, a nation, a region, even the whole EU could look back and be proud, and find new strength in a job well done, a renewed sense of community and fellowship.

Workshop 2

Presenting the capacities of WP and USAR modules

The second Workshop took place in Budapest between the 29th –30th of June 2016, hosted and led by the Budapest Waterworks. Expected results were:

- The participants get to know each other's modules and capacities;
- They reveal development options and alternatives to expand capacities;
- Lay down standardisation guidelines;
- Further results are workshop minutes, summary report (by each workgroup), and SWOT analyses.

Budapest Waterworks presented its mobile water purification (WP) unit, and invited the participants of the 2nd Workshop for a live demonstration on Szentendre Island. The Hungarian USAR team was presented by Mr. Arpad Keresztesy EUWA project Technical Manager. Belgrade Waterworks also presented its capabilities, and also detailed the 2014 Balkan floods and the lessons learned, which led to the establishment of more efficient response teams for water purification. Slovakia introduced in detail their main capability committed for the purposes of the exercise, the HCP (high capacity pumping) units.

Cpt Vida Sándorné Balog Katalin EUWA Head of Evaluators presented on the aspects of EUWA 2016 exercise evaluation. Evaluation will entail a systematic acquisition and assessment of information gathered together during the flow of exercise by the evaluation team, using the agreed methods, to provide useful feedback, to all the participants of the exercise / project, to influence future decision-making in exercises and in real-life situations. Each project partner must assign an evaluator for the remainder of the EUWA 2016 project.

Following the plenary, the individual workgroups were formed, which worked for the rest of the day, and presented their findings during the second day, including SWOT analysis.

Following the group presentations, the participants travelled to Szentendre Island, for a live demonstration of the Mobile Water Purification Module, as presented and operated by the Budapest Waterworks.

Workshop 3

Harmonisation of WP and USAR in action with host nation support

Workshop 3 took place between the 13th –14th of October 2016, led by the Belgrade Waterworks and Sewerage, and present were representatives from Slovakia, Croatia, Serbia and Hungary. The new representative from European Commission, our new replacement for Mr. Per Ovid Semb, desk officer of the “EURBAN Water Aid” project, desk officer Mr. Arya Honormand was regrettably not able to join due to last minute complications. Budapest and Kosice waterworks’ representatives were also present, as well as the Hungarian Red Cross.

The Workshop continued with a general review of WS 3 topics and detailed summary in a presentation from Colonel Peter Jackovics (commander of the Hunor USAR team). His presentation outlined the goals and expected results for the 3rd Workshop:

- This is also an Exercise Planning Meeting, the first of two such scheduled meetings. This has already been successfully conducted.
- The main goal of the 3rd workshop is the harmonization of WP and USAR in action with host nation support.
- Expected results: Enhanced harmonization of WP and USAR modules’ deployment and operation, Workshop minutes, summary report (by each workgroup), WP-USAR joint checklist, GIS application

This concluded the plenary session. Following the plenary meeting, participants were divided into three groups: Command and Control Workgroup; Support and Logistics Workgroup; Operations Workgroup.

The workgroups program lasted for the rest of the day. Group presentations were scheduled for the second day of the Workshop.

On the second day, the main event was an organized study tour to Water Treatment Plant MAKIS, along the Sava river. During the second day plenary session at MAKIS, each Workgroup presented its findings and produced presentation documents.

Workshop 4

Validation workshop

The fourth and last workshop of the project was held in Porec, Croatia. In the first part of the workshop the workgroups processed the lessons learnt from the exercise and they prepared the drafts of the Field Handbook for Emergency Water Supply and the Recommendation for Procedures of command & control, operational and support & logistics. Based on the experiences of the project, the workgroups looked for additional opportunities of connection and integrations. The Finalising Committee (ad hoc body formed by the heads of the three workgroups) finalized the Field Handbook and the Recommendation. In the plenary part of the Workshop the finalized Field Handbook for Emergency Water Supply and the Recommendation for Procedures was presented for adoption to the workshop participants.

Project Implementation III.

TTE

Before the Full Scale Exercise, a smaller, indoor exercise was organised in Nyíregyháza, Hungary, simulating a flood situation similar to the one of the Full Scale Exercise. At this Tabletop Exercise members from rescue units of project partners and participants from water purification module and EU Civil Protection Team took part, also the national contact points had to play along. The Tabletop Exercise simulated the activation of the EU Civil Protection Mechanism, the alerting and mobilisation of modules and rescue units offered by Participating States and their deployment and activities in the affected area.

During the tabletop exercise, participants from the response teams were divided into two groups: Liaison Officers and Teams (led by the Team Leaders). **Physically separated from each other, the teams were simulating the situation of arrival to site: The Liaison Officers of the Hungarian teams were embedd in the Local Emergency Management Auhtority , while ones of the foreign response units were with the On-Site Operations Coordination Centre.**

Procedures of the participating organisations were tested (alerting, mobilisation, travel, border crossing, host nation support, command and control, demobilisation), the developed geo informatic system application and its analysis tools and other communication systems have been tested. The geo informatic system application was provided by National Directorate General for Disaster Management of Hungary and used by the participants of the exercise to choose the sites according to the existing risks, and to plan the deployments. The tabletop exercise also served for testing the existing conditions of alert and mobilisation system.

Project Implementation IV.

Full Scale Exercise

As the climax of the EUrban Water Aid Project, with the participation of various units and organisations from the 4 partner countries an exercise simulating large scale flooding had been taking in Hungary between 4-6 April 2017. Other than the five Project Partners, the Szabolcs-Szatmár-Bereg County Disaster Management Directorate, the Upper-Tisza Region Water Management Directorate, the Nyír Rescue Team, and the Hungarian Red Cross also participated in the Exercise.

Szabolcsveresmart and the Rétközi-tó (Lake Rétközi) belonging to the settlement hosted the exercise focusing on protection against damages caused by flood. Apart from the flood response teams there were instructors, evaluators, role players, exercise controllers and support personnel adding up to more than 300 participants in total. The exercise comprised different flood response techniques including water rescue, water pumping, water purification, and flood containment.

According to the exercise scenario, due to the large flood coming from Ukraine and the significant amount of rainfall the dam burst and the settlement was flooded. Forces and tools of local professionals required international assistance. Installations imitating streets and buildings were created on the lake, from which the teams had to rescue victims and animals, and salvaging properties. Besides the rescue teams, the involvement of actors playing the role of disaster victims made the exercise more realistic.

FSE

Photos



Project Dictionary

As part of the communication tasks of the Project, a special, custom dictionary was also created. An easy to handle dictionary containing more than 100 selected, water purification and search and rescue related words in all the four languages of the Partners (Hungarian, Slovak, Serbian, Croatian) plus English is a great, useful and output of the Project. The Dictionary covers words and expressions from hydraulic head to indemnification as well as from OSOCC to technical rescue.

The hundred some words of the Dictionary were jointly selected by the five Project Partners and are organised by topics like Conditions and Deployment of Operation, Vehicles, Equipments-Tools, Storage-Distribution, Materials, Operation, Quality Assurance, Environmental Protection and Operations.

The Project Dictionary was distributed among the Project Partners and the VIP guests of the Full Scale Exercise in April, 2017 in Szabolcsveresmart, Hungary.

Communication

a. High Level Conference

On the third day of the Full Scale Exercise after the official closing event a Hot Wash Up Conference took place in Szabolcsveresmart, Hungary. The Conference provided opportunity for all the participating organisations to introduce themselves and to share their experiences about the Full Scale Exercise and how did the past days met their expectations for the event. The language of the confere was English and was facilitated by Budapest Waterworks.

b. Public Information Day

The final of the Students' Competition was held as part of a Public Information Day and Resident's Forum.

The final was followed by a Forum, a supplementary presentation and discussion for the interested population of Szabolcsveresmart and the surrounding settlements. The attendance of the Forum was around 100-150 persons. The presentation introduced the Full Scale Exercise and the Project for the population expressing interest in it, as well as drawing the audience's awareness to the importance of the Exercise. The Forum also contained a bloc kin which local representatives from the Disaster Management Authoritites refreshed the population's awareness and knowledge about Civil Protection and flood defence.

c. Students' Competition

As part of the communication task package of the Project, BWW and NDGDM organised a 3 rounds Students' Competition for elementary school students of Szabolcsveresmart and the surrounding settlements. The two age groups were grade 3-4 and 5-6 with 80 and 61 participants from each. The topics covered by the Students' Competition were drinking water, water protection, disaster management and environment protection. Prizes for th ebest preforming students included book and sport vouchers, cameras and tablets. The participating shools were also presented with some book vouchers for mobilising their students to participate.

d. Project Website

Since the beginning of the implementation of the Project, the EUrban Water Aid website is available at <https://www.euwa2016.org/> with all the relevant information about the Project, the Project Partners and the events taking place during the implementation of the Project. Photos, media, articles as well as workshop documents are available to download from the website. The website will remain available for at least six month after the closing of the Project.

EUWA Field Handbook SUMMARY

The Field Handbook on Emergency Water Supply is one of the key outputs of the whole EUrban Water Aid project. It has a very long title “The Field Handbook for Emergency Water Supply and the Recommendation for Procedures of Command & Control, Operational and Support & Logistics.

The Field Handbook is part of a work package called “Cooperation framework between WASH and civil protection in emergencies” which aims to identify the possible points of connection between urban search and rescue (USAR), high capacity pumping (HCP) and emergency drinking water purification (WP) activities, to enhance cooperation, to solve problems and to find solutions for the effective combined application of these modules. These possibilities for solutions are discussed during the four workshops, which give the backbone of the EUrban Water Aid project. The recommendations are compiled and published in a form of the Field Handbook and also as part of the Final Report.

Most important aspects of the Field Handbook are:

- The Field Handbook contains an assessment of current legislation on floods and water supply in the respective countries and proposals for their standardization and harmonization. We have found that participant countries' legislation in our field is mostly harmonized with EU law, with the exception of Serbia (not yet an EU country). At the Validation Workshop, we had to make comparisons between the participant countries, and where we found differences (especially Serbia), we noted them in our Field Handbook, with proposals for standardization and harmonization.
- Field Handbook is also a book of recommendations, containing the solutions from operational aspects and logistics aspects to the problems encountered during the field exercise.
- The 4th „Validation” Workshop at Porec, Croatia was assigned to assemble, finalize, and approve the Field Handbook. At the Workshop, the head of the team of evaluators presented a report about their findings during the exercise. The Field Handbook contains the improvements identified by the evaluators.